

Remarks

Early action on the present Preliminary Amendment is respectfully requested.

The specification and the claims have been amended to overcome a clerical error. The surfactant Zonyl FSN-100 was referred to in the application as being a perfluoroalkyl sulfonate. As can be seen by the attached data sheet, this was an obvious error. Zonyl FSN-100 is actually a water-soluble, ethoxylated nonionic fluorosurfactant. The amendment to the specification is necessary to correct this obvious error.

Applicants submit that the claims are in a condition for allowance and respectfully request a notice to that effect. If the Examiner believes that discussion or a claim amendment of a minor nature would advance the prosecution of the application, the Examiner is highly encouraged to telephone the Applicants' attorney at the number given below.

Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978 -- a duplicate of this paper is enclosed for that purpose.

Respectfully submitted,

PHILIP M. JOHNSON ET AL.

By



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Date: June 13, 2003

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DuPont™ Zonyl® FSN-100

Fluorosurfactant

Description

Zonyl® FSN-100 is a water-soluble, ethoxylated nonionic fluorosurfactant that contains no solvent. The absence of solvent makes Zonyl® FSN-100 a particularly effective additive to organic polymers and solvent-based paints and coatings for providing internal lubricity. The diffusibility of Zonyl® FSN-100 to the surfaces of polymers, caulk, and solvent-based paints and coatings provides superior weatherability, resistance to soiling, and UV stability.

Structure



where $Rf = F(CF_2CF_2)_y$

$x = 0$ to about 25

$y = 1$ to about 9

Applications

Graphic Arts

Pigment compatibility in inks, improved cylinder life in print equipment, and better print definition.

Paints and Coatings

Improved antisoiling, antifogging, UV resistance, compatible with most aqueous- or solvent-based paints.

Polymers

Internal lubricant, antifogging, reduced plasticizer migration, coupling agent for fillers, UV resistance, antisoilant.

Waxes and Polishes

Improved wetting, enhanced leveling, reduced cratering, compatible with most aqueous- or solvent-based waxes and polishes.

Metals and Electronics

Improved etching efficiency, plating bath aid, and zinc battery scale inhibitor.

Caulks

Improved UV stability, antisoiling, and weatherability, elimination of silicone bleeding, compatible with most aqueous- or solvent-based caulk.

Physical Application Properties

Solubility

- >2% in water, isopropyl and methyl alcohol, acetone, ethyl acetate, toluene, THF, and methyl chloroform
- Insoluble in n-heptane

Specific Gravity at 25°C (77°F)

- 1.35

Density at 25°C (77°F) (lb/gal)

- 11.2

Surface Tension in Deionized Water at 25°C (77°F)

- 24 dyn/cm at 0.001% active ingredient
- 23 dyn/cm at 0.01% active ingredient

Foaming/Defoaming

Emulsifying (especially Halogenated Materials)

- Effective

Wetting

- Highly effective

Detergency

- Not effective

Dispersing

- Effective

Compatibility

- Widely effective in solutions with high or low pH and high or low hard ion (polyvalent cation) concentrations

Product Properties

Appearance

Brown waxy paste. Melt completely and mix thoroughly to ensure representative sampling.

Ionic Character

Nonionic

Molecular Weight

~950

Composition

100% fluorosurfactant

Flash Point

Self-extinguishing

pH

6< pH<8

Heavy Metals

- <0.5 ppm As, Se, Cr, Pb, Ba, Ag, Sb, Cd
- <10 ppb Hg

Stability

- Stable to freezing. Heating to 40°C (104°F) will restore liquidity
- Chemical stability: 2< pH<12
- Performance stability: 2< pH<12
- Shelf life: 2 yr

Availability

2-oz samples: 8- and 40-lb containers

Personal Safety, First Aid, and Storage and Handling

See the Material Data Sheet (MSDS) for product specific information. Mix well before using.

Technical Assistance

For help in selecting or evaluating these products for your application, please call DuPont's technical service experts at 800-255-4596.

Ordering Information—Product, Literature, or Samples

To place an order for DuPont Zonyl® FSN-100, call DuPont Performance Chemicals Customer Service toll free at 800-441-9140. For additional literature or a product sample, call 800-255-4596. For locations outside the United States, contact the local DuPont representative in your country.

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The DuPont Company